IDENTIFYING NUMERACY AND READING READINESS LEVELS OF ENTRANTS TO CLASS - 1 IN DELHI

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PREFACE

With the growing realisation of the importance of early years in allround development and learning of the child, Early childhood Care and Education (ECCE) has gained a significant place in the overall context of Universalization of Elementary Education (UEE). However, the percentage of children exposed to ECCE is still extremely negligible. The ECCE programmes too have a variable quality so that every such programme does not ensure development of readiness in children for primary schooling. It is in this context that it becomes necessary to know the level and competencies of children when they enter grade 1. The curriculum planned for grade I should be based on this information if it has to help children progress towards mastering the required competencies in a systemative way. The study of "Identifying numeracy and reading readiness levels of entrants to class I" is an effort in this direction. The study, it is hoped, will be of immense value for curriculum planners and text book writers in order to make learning of children rewarding, joyful and need based in primary grades

The present study has been undertaken in Delhi, drawing samples from MCD schools and public schools, alongwith studies in four regions of the country through Regional Institutes of Education (RIEs). The study may provide comparable data, on entry level behavior of children, along with the other studies

I would like to thank ECE faculty in the department particularly Dr G.C. Upadhyaya, for taking up the study and bringing out the report in its present form I would also like to thank Mr R.S. Saini, Education officer, MCD and his team of officers for their cooperation and participation in data collection. In the same vein, I would like to thank all the principals and teachers of public schools who gave their full cooperation in data collection from their respective schools Last, but not the least, I would like to thank Amrendra Pani, Vibha, Shobha Sahu, Urbashi, Alpana Banerji, who all assisted in try out of tools and data collection and Dr. Neeru Bala, Senior Project Associate who helped in analysis and report preparation.

I hope that the study will be found useful and informative by text-book writers, teachers and educational administrators Suggestions and feedback are very welcome.

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DPSEE

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INTRODUCTION

1.1 The Context:

One of the major national initiatives for achieving the cherished goal of improving and universalising the quality of education, specially at primary stage, has been the launching of the District Primary Education Programme (DPEP). The base-line studies conducted by NCERT, during the initial and preparatory phase of DPEP, indicated poor learning achievement of children in primary grades, specially in reading and mathematics. For instance, the findings revealed that 47.6 per cent of the students in class II in Panna district of Madhya Pradesh could not read even a single letter correctly. The same was true for one third of pupils in Nanded in Maharashtra, Sirsa in Haryana and Kasbi Anglong in Assam. Similarly, in the case of recognition of single digits, simple addition and subtraction the averages were exceedingly low (NCERT, 1994).

While analysing the causes for such a poor learning achievement of children, the significant contributing factors revealed were difficulty level of textbooks, comprehensibility of language used in textbooks, teachers related factors, class-size, teachers pupil ratio, attendance, pre-school experience and other environmental factors.

It is evident that pre-school experiences provide sufficient readiness to children to take on formal learning tasks in grade I. The access to and quality of preschooling vary significantly from urban to rural areas and from one region to another. Not only this, the chronological age as criterion for school entry also has variations from one region to another. In this context, one of the important factor which could determine the school success is the average readiness level of children with which they enter school, to take on the tasks of the prescribed core curriculum. Thus, one of the important consideration to enhance the learning achievement of children would be designing curriculum contents based on the average preparedness of the child for the tasks expected from him/her in a particular grade. The study of "Identifying numeracy and reading readiness levels of children entering class I" has been conceived in the context of DPEP strategy for improving the quality of learning in the areas of reading and mathematics by suitably designing curriculum and learning materials based on children's needs and acquired levels of readiness to assimilate grade I curriculum.

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The National curriculum Resource Group (NCRG) constituted by the NCERT to support DPEP activities in the states for effective implementation of DPEP strategy was assigned to take various activities in the area of development of curriculum and instructional material. The need to identify the readiness levels of children in numercay and reading was found crucial. Accordingly the study was planned to be conducted in four regions of the country through the involvement of four Regional Institutes of Education located at Bhubaneswar, Bhopal, Ajmer and Mysore. This study was obviously, designed to provide research based information on children's entry level readiness (numeracy and reading) for developing textbooks and learning material for early grades in respective regions.

Study Plan:

Study plans for different regions were developed in a five days national workshop for NCRG held from 31 May to 4 June, 1995 at NCERT, H.Qs. Plans were developed for the different activities to be conducted at H.Q. level and respective Regional Institutes of Education (RIEs). Task leaders for H.Qs and RIEs submitted respective plans

Activities planned for H Q. were

    1.   Constituting Advisory group for the Study

    2   Tools construction

    3   Try out and finalisation of Tools

    4   Meeting of Advisory Group

    5   Orientation of RIE task leaders on tools.

Activities Planned for respective RIE

    1.   Orientation of field staff for data collection

    2.   Adaptation of Tools for regional variations

    3.   Data Collection

    4.   Analysis and Report Writing.

<u>Present Study:</u>

The present study is undertaken in Delhi, by the Department of Pre-School and Elementary Education, in addition to 4 regions where studies were taken up through the involvement of Regional Institutes of Education (RIEs).

<u>Concept of School Readiness:</u>

School readiness could be defined as the child's attainment to enable him to fulfill school requirements and to assimilate curriculum contents The dual characteristic of this definition refers to the child himself, on the one hand and to the school and its requirements on the other.

There are different views regarding the concept of school readiness. One version of readiness concept states that children become ready for formal learning at different times as a result of maturation Gesell Institute of Child Development on the basis of extensive work done suggested a developmental placement programme for children i.e. starting school on the basis of behavioral age rather than chronological age or intellectual age. Those who support the development philosophy maintain that behavior develops in a patterned predic table way and any child needs to have reached a certain level of maturity before he/she will be ready for the work of the grade. It holds that training or pre-school experience do not speed up growth (Frances & Louise, 1978). Another view holds that the initiative for active learning comes from the child and it bears no relation to the "growth from within" i.e maturational concept of readiness. To relax and wait for maturation when there are many concepts and skills to be developed would appear to be deliberately retarding the child. Pre-school experience is significant in this context.

The relationship between maturation and learning is complex However, both are treated as complementary to the development process

Reading Readiness:

For beginning reading the child needs to have developed various skills Some of the distinguished elements are good control of oral language, visual perception, auditory skills and audio-visual association. Each of these elements in turn involve number of skills For instance, visual discrimination is impossible without recognition and comparison. For reading, child needs to discriminate adequately between symbols (alphabets) and to build his sound association for cluster of letters, with directional behaviour under control For reading progress child organises reading behaviour through the use of all the above skills Children who learn to read slowly have poor language skills (i e. auditory discrimination of sounds, words and sentences) and visual analysis of shapes.

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The elements of reading readiness are developed during the transition period extending several months, during which time the child slowly becomes a beginning reader from a non-reader. The new entrants to school must confine pre-school free scanning behaviour to particular directional behaviour This transformation is possible only in the presence of any print when the child discovers how oral and written languages are associated

Number Readiness:

There are some basic skills and concepts necessary for number work. These skills relate to conceptualising quantitative features of sets of objects and understanding the relation between these sets, developing concept of equivalence and non-equivalence and order relations including seriation, skills of matching, counting, classification and sequential thinking.

It has been found that from a very early age children are able to subitize small sets of objects and establish their cardinality There is no direct evidence concerning children's knowledge of this attribute of counting correctly, but children's ability to produce correct correspondence in counting is well established There is substantial knowledge about the counting competence of pre-school children but knowledge about the cognitive base and correlates of counting is difficult to establish. Children's competence in producing sequence has been reported by Fuson- et al (1982). The mean length of accurate number word sequence produced in non-object context increases from 13 at 3 1/2-4 yrs. to 51 at age 5 1/2 to 6 years. Ginsburg and Russel (1981) reported mean length of number word sequence for 4 years old pre-schooler to be 19 89

During early years a young child uses perceptual similarity for judgement of relative numerosity When perceptual clues are misleading, child's judgement of relative numerosity is incorrect (Piaget 1941/65). Subitizing experience which is used by young children on perceptual basis is to be unlearnt and replaced with age by matching or counting to establish correct numerosity. Piaget (1941/65) on the basis of his work on seriation concluded that a child before the age of six, i e. the beginning of concrete operational stage, is able to make pair by pair comparision but not able to co-ordinate several pairs in a coherent ordered set of objects

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For number readiness it is essential that the child gets opportunities to gain experience in the above skills before entering school.

School Readiness and School Success:

Behaviour inventories used by Gesell Institute of Child Development found that a child who is to be dressed, fed and forced on to school bus is not ready for school. An unready child finds it difficult to take part in a group A Child who objects to go to school indicates a prime sign of his/her unreadiness. It is assumed that 50% school failure can be prevented if placement of child in school is done according to behaviour age rather than chronological or intellectual age. Problem of failure arises when children are over placed and unready for school These inventories therefore advised teachers to note whether children know the names of body parts, know left from right, identify colors and shapes by name, can co-operate and participate in group activities, can walk on balancing beams etc. Teachers are also advised to look for problems in such activities like holding a pencil, pasting, shoe tieing as well as note that which children reverse letters and numbers. It was presumed that children experiencing difficulties in such areas are likely to have problem in mastering Primary School Curriculum. But most of these warning signs have not been found to have significant correlation with school failure and are thus ineffective (Simner 1983). The Effective warning signs evident among kindergarten children who are at risk for school failure have been found to be as follows

1   In-class attention span, memory span

2   In-class verbal fluency

3.   In-class interest and participation

4   Letter or number identification skills

5   Printing errors.

Okon and Okon (1973) using the test to evaluate readiness in terms of intellectual development in 6 and 7 years old children and its influence upon school success found that significant correlation exist between school readiness and school success. Items in the test included recognising objects, sets and symbols as based on differentiation, comparision classification, formation of elementary mathematical concepts and copying symbols with

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varying degree of abstraction. The findings also revealed strong influence of environment on readiness levels of children. Significant differences were found between rural and urban children (r bis = .35) Age was also significantly associated (r bis = .26), for extreme groups of 6 years and 7 years. Sex was not found associated significantly. However, on a few items girls did perform better than boys. Pre-school experience was found significantly associated (r bis = 17) for rural children where as there was no significant association for urban children.

1.2 Statement of the Problem:

The topic of the study is-

"IDENTIFYING NUMERACY AND READING READINESS LEVELS OF ENTRANTS TO CLASS I"

1.3 Objective of the study:

The major objective of the study is to identify numeracy and reading readiness levels of children entering class I, in order to provide guidelines to textbook writers. The specific objectives of the study could be stated as below:

- to identify reading readiness levels of entrants to class I
- to identify numeracy readiness levels of entrants to class I
- to identify those components of readiness which need strengthening
- to establish relationship between environmental factors and readiness levels
- to establish relationship between readiness levels of entrants to class I and the teacher's rating on child's social maturity
- to provide feed back to curriculum planners and textbook writers

1.4 Research Questions:

The research objectives could be summarised into following research questions.

1 What are the reading and numeracy readiness levels of entrants to class I ?

2. What are the components of reading and numeracy readiness which need strengthening ?

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4. What are the components which need to be strengthened as judged from the performance of children (with and without early chilhood education experience) for reading and numeracy readiness ?

5. Is there any difference in the reading and numeracy readiness of children below and above five years of age ?

6. Do social maturity, parental education and children's age contribute to variation in the level, of readiness ?

METHODOLOGY

The present study, as/has been mentioned earlier, was undertaken at the initiative of Department of Pre-school and Elementary Education with the purpose of having Comparable data for Delhi Children, on aspects of Reading and Numeracy readiness, with those in four regions where the study was under taken through Regional Institutes of Education. The common design of the study discussed and finalised in Advisory Group meeting for the DPEP studies in four regions was applicable to this study as well. The detailed information pertaining to sampling, tools, data collection, scoring and analysis has been presented below

2.1 Sampling Method:

Schools were selected from different zones using random sampling technique. At school level, as well, children were selected in the sample using the same technique of random sampling.

2 1 1 Sample size:	No. of Schools	No. of students
	MCD 27	217
	Public 10	80

2 1.2 _Sample characteristics._

a) Gender composition·

	Girls = 194	Boys = 103

b) Socio cultural Groups

	Gen = 66%	SCs = 25%
	OBCs = 8%	STs = 1%

c) Age-wise sample distribution·

Age categories	No. of children in the sample
below 5 years of age	21
5 years to 5 years 6 months	161
5 years 6 months to 6 years	64
above 6 years	51

d) Parental educational level:

Sample distribution according to Mothers' educational level

Illiterate = 141

Upto-primary = 43

Middle = 14

Sr Sec. = 33

Graduate = 15

P.G. & above = 10

No Response = 42

Fathers educational level

Illiterate = 56

Primary = 68

Middle = 30

Sr Sec = 45

Graduate = 39

P.G Graduate = 11

No. Response = 49

e) Sample distribution according to pre-school experience of children

	Public	MCD
with pre-school experience	80	62
Without pre-school experience	-	155

f) Ninty six percent of the children reported Hindi as Mother Tongue.

2.2 Tools:

Tool's construction was done in the Department of Pre-school and Elementary Education. Tools used by Prof. R. Muralidharan (NCERT) in the study of Temple children in Andhra Pradesh 1992 and Tools constructed for school readiness by her and associates in 1973 were taken as basis to select the suitable items for the tools construction. Some of the items were similar but some more items were included in the tools as per the dimension of the present study.

2.2.1 Tryout of Tools & Finalisation of Tools:

Items developed for each dimension were tried out in seven Anganwadis among 21 children in Delhi. Difficulty level and discrimination index were calculated. Too difficult or

too easy items were either deleted or modified to have moderate difficulty level The tried out data was presented before the Advisory Committee in a meeting and discussed Originally the study was planned to test AW children who are likely to enter class I But the study could be launched only in the month of July when children entering class I had entered the school in April It was therefore proposed to have few items included for number knowledge and word identification. 4 items were added on each of the tools. Thus total items on each of the tool ware 35

2.2.2 Table 2.1 Readiness test: Components and their sub Components:

1. Reading Readiness		2. Numeracy Readiness	
Components	No. of Items	Components	No of Items
1 1 Vocabulary	12	2 1 Pre number Components	14
1 1 1 Sentence Comprehension	4	2 1 1 Concepts of size length height thickness, width, quantity and distance along with their seriation	one item each
1 1 2 Action Pictures	4		
1 1 3 Community helpers	4		
1.2. Visual perception	8	2 2 Space Concepts (Concept of position)	7
1 2 1 Visual Matching	4	2 3 Classification	3
1 2 2 Visual Discrimination	4	2 4 Sequential thinking	3
1 3 Auditory Discrimination	8	2.5 Part-whole Relationship	4
1 3 1 Initial Sound	4	2 6 Number items	4
1 3 2 Sound Discrimination	4		
1 4 Audio visual Association	3		
1 5 Words Identification	4		
Social Maturity (No of items) = 6 Rating scale = 3 point scale		Min Marks 6	Max Marks 18

2.2.3 Reliability:

The reliability coefficient of the tools based on test-retest method was calculated to be 0 71 Retest was conducted on 32 children after a gap of 2 months.

2.2.4 Validity:

Content validity was established on the basis of experts opinion

2.3 Response sheets:

Scoring sheet was developed for recording responses of children on each item. In addition to scoring of reading readiness items (35) and numeracy readiness items (35) the scoring sheet also included information about child's background Six items on child's observation were also framed to get data, on the basis of general observation of the child, about the social readiness of the child These items were framed on three point rating scale resulting in a composite score varying from 6-18 for each child.

2.4 Data Collection:

Data collection was carried out in MCD schools with the help of Supervisors of Education Department, Delhi Administration. An orientation of the field staff was organised on data collection and administration of tools. Practical experience of tool administration was given to each supervisor involved in data collection Administration of tool was to be done individually for each child. Administering the tool took nearly 30 minutes for each child. In a day, data collection from nearly 4-5 children was expected Thus, 10 supervisors were employed to complete the data collection within 7 working days

2.5 Analysis :

Data were subjected to following analysis:

(i)   Frequency distribution for each dimension and subcomponent for total sample and across groups.

(ii)   Significance of difference between means on different dimensions and sub components across groups.

(iii)   Significance of difference between means on different dimensions vis-a-vis age.

(iv)   Multiple regression analysis between Readiness scores, as dependent variable. Age, Social Maturity and Fathers and Mothers education as predictors.

The four times of word identification under reading readiness and four items of number knowledge under numeracy readiness have been excluded in the final analysis.

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RESULTS AND DISCUSSION

Results of the study have been presented in terms of attainment levels of children in the areas of reading readiness and numeracy readiness. The levels of attainment in different components and subcomponents of reading readiness and numeracy readiness have also been presented for MCD and Public School children separately.

The influence of environmental factors including pre-school experiences, parental educational level and age on readiness levels of children has been analysed to show relative contribution of different factors. The correlation between child's Social maturity index based on teachers' rating and reading and numeracy readiness levels have been analysed and presented.

3.1 READINESS LEVEL OF CHILDREN ENTERING CLASS I :

To ensure smooth transition from home/preschool into primary school, it is necessary to base the curriculum for the early primary grades on the readiness level demonstrated by children. This ensures continuity and make the class I curriculum more meaningful for children thus facilitating their adjustment in the school

Table -3 1 Shows the readiness levels of children in numeracy and reading.

Table 3.1 : Cumulative frequency distribution (in %) along with Means and S.Ds for Reading and Numeracy Readiness of Class I entrants (N=297).

Marks	Reading Readiness Frequency distribution	Numeracy Readiness Freq distribution
25-31	100	100
17-24	79	47
9-16	49	19
1-8	17	05
0	01	01
Mean	16 90	22.85
S D	7 96	7.41

It can be assumed at rational level that pupils falling in the fourth quartile i e above 75% are completely ready for the formal schooling and those scoring between 50% and 75%

Fig - 1

Cummulative percentage curve of 297
Scores on R.R. and N.R.
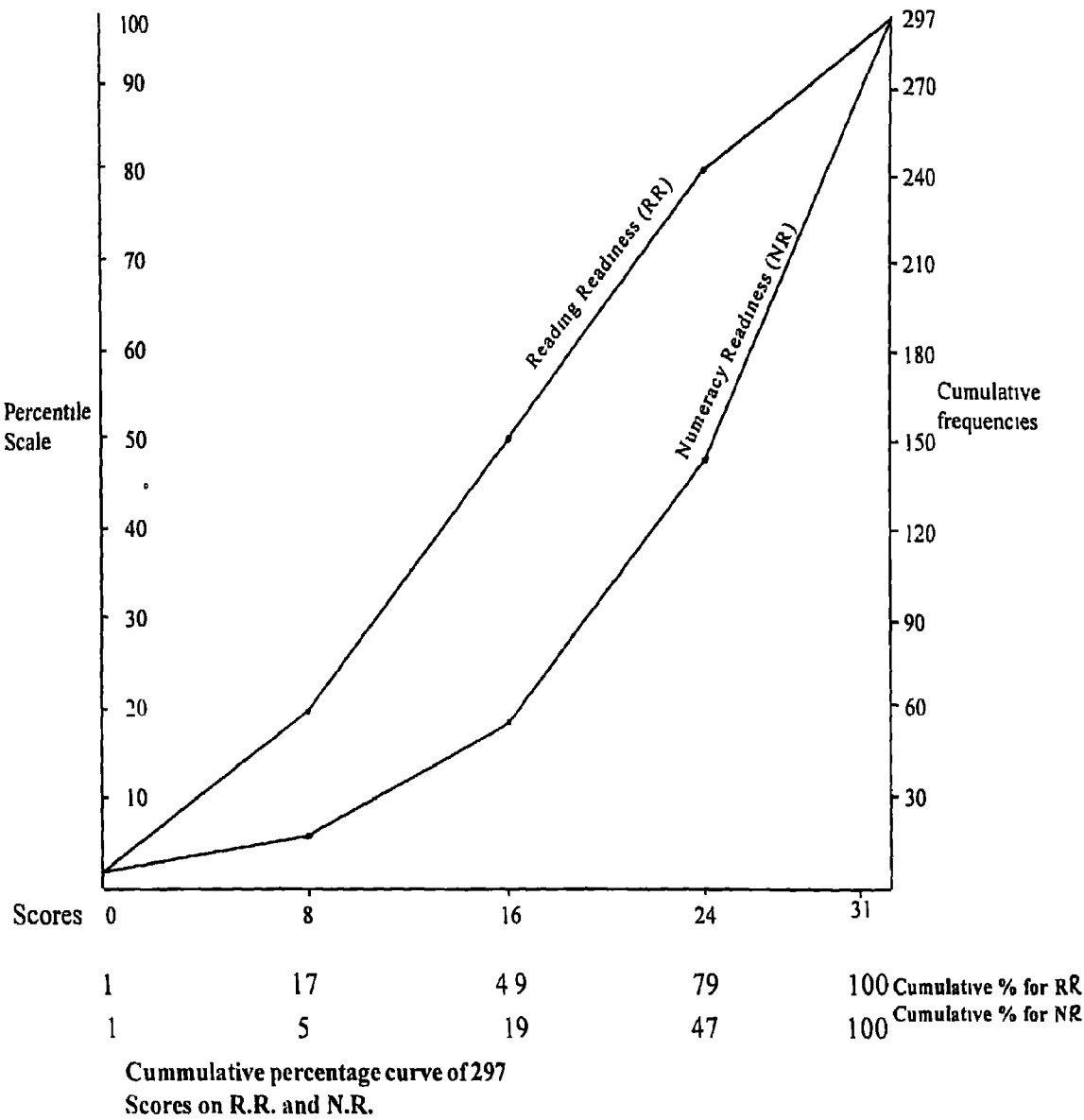
are moderately ready for the schooling A look at Table 3.1 and Fig 1 indicate that Numeracy Readiness among pupils is higher than Reading Readiness. (53% pupil fall in the fourth quartile for Numeracy Readiness whereas only 21% fall in the fourth quartile) for Reading Readiness. It seems that children get exposed to the concrete experiences related to quantitative features of objects more in their daily life Where as their exposure to gain experiences on various aspects of language development appears to be limited. Conscious efforts need to be undertaken by parents and educationists at various levels in this direction 73% of the sample is from low scioecnnomic class. It seems that children from this strata are not exposed to the experiences which may serve as foundation builders for formal schooling. Researches along this line also indicate that mothers from low socio- economic, background do not understand the requirement of the educational environment (Jones, 1966) The picture becomes more compounded by the fact that 47 5% of the mothers of sample children were illiterate

3.2 READINESS COMPONENTS NEEDING ATTENTION:

3.2.1 Reading Readiness:

Reading readiness was measured in terms of pupils performance on following components· vocabulary, Visual perception, Auditory discrimination and Audio-visual association Vocabulary, Visual perception and Auditory discrimination were further subdivided into subcomponents (Table 3.2)

Table 3.2 Reading Readiness Components & Sub Components Cumulative frequency distribotion (in%), Means & S.Ds

SI COMPONENTS				SUB COMPONENTS		
No	Marks Range	Freq Distribution	Marks	Sentence Comprehension	Action Pictures	Community Helper
1. Vocabulary	10-12	190	4	100	100	100
	7-9	55	3	73	48	53
	4-6	29	2	40	23	48
	1-3	7	1	16	7	30
	0	-	0	5	3	27
	Mean		8 27	2.76	3.2	2.44
	S D		2.67	0.99	1.04	1 68

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1 2	Visual Perception				Visual Matching	Visual Discrimination
		7-8	100	4	100	100
		5-6	61	3	51	68
		3-4	36	2	33	51
		1-2	20	1	21	32
		0	10	0	13	22
		Mean	5.12		2 83	2.29
		S D	2 65		1.43	1.52

1 3	Auditory Discrimination				Initial Sound	Sound Discrimination
		7-8	100	4	100	100
		5-6	84	3	76	91
		3-4	73	2	69	81
		1-2	62	1	62	67
		0	42	0	55	51
		Mean		2 46	1.37	1.10
		S D		2.86	1.71	1 36

1 4	Audio Visual Association		
		3	100
		2	76
		1	67
		0	59
		Mean	0 97
		S.D	1 28

A look at the components of Reading Reediness dimension, revealed that amongst the components of Reading Readiness, Audio Visual association and Auditory discrimination are weakest component of Reading readiness where more than 60% of children fall in the first quartile, followed by visual perception (20%) falling in first quartile). Vocabulary seems to be better off in comparison where 7% children fall in first quartile and 45% fall in the fourth quartile. It can be observed from the Mean & S.D. values of subcomponents of Reading Readiness that variance in Children's performance is high. S.D varying between 0 99 to 1.71 (Table 2) when maximum marks are 4. In terms of average performance of children it can be said that the skills of Identifications of Initial sound, Sound discrimination,

Visual matching and Visual discrimination need to be strengthened in particular along with Sentence Comprehension and other dimensions of vocabulary.

3.2.2 Numeracy Readiness:

Numeracy readiness was measured in terms of pre number concepts, space concepts, classification, Sequential thinking and part whole relaionship.

It can be observed from table 3 3 that Sequential thinking is the weakest component where one fourth (26%) of the children scored zero. Concept of classification is best as reflected by children's performance (74% scoring 100% of marks). Classification concept is followed by Space concept here 86% scored above 50%, of these 55% were in the fourth quartile This is followed by Prenumber concept where 53% children fall in the fourth quartile and 7% in the first quartile For the Part - whole concept, there is a wide variation reflected in children's performance, 58% children were falling in the fourth quartile and at the same time 19% of children were in the first quartile.

Table 3.3: Mean S.Ds & Cumulative Frequency distribution (in%) for components of Numeracy Readiness and percentage of pupils responding correctly to subcomponents of Numeracy Readingness

S.No.	Components	Marks Range	Frequency Distribution	Sub components Concept	Seriation
2 1	Pre-Number	12-14	100	Big Small 92	69
		8-11	47	Long-Short 92	69
	Means = 10.37	4-7	27	Tall Short 88	69
	S D = 3 9	1-3	7	Far-Near 69	51
		0	-	Up-Down 84	60
				Thick-Thin 89	69
				Less-More 75	56
2 2	Space Concepts	6-7	100	In-Out 93	
		4-5	45	On-Under 93	
	Mean = 5.45	2-3	14	Front-Behind 81	
	S D = 1 72	1	4	Full-Empty 91	
		0	3	First-Last 76	
				Left-Right orientation 64	
				Left-Right 46 (Double command)	

2 3	Classification	3	100		
		2	26		
	Mean = 2.55	1	11		
	S.D = .90	0	6		
2.4	Sequential Thinking	3	100		
		2	70		
		1	45		
	Mean = 1 59	0	26		
	S.D = 1.17				
2.5	Part whole relation ship	4	100	Full	94
		3	42	Half	76
		2	33	Less than half	67
	Mean = 3.00	1	19	More than half	62
	S.D = 1 33	0	5		

A look at the subcomponents of the numeracy readiness indicate that some pre-number concepts like far-near and less - more were relatively difficult for children Senation skills also need to be improved upon Coming to the sub components of space concepts pupil showed less awareness of left and right positions. Sequential thinking skills and part-whole relationship also need to be strengthened

Table 3.4 Cumulative frequency distribution in % of children's scores on Reading and Numeracy readness and its components.

1 Reading Readiness					2 Numeracy Readiness				
	Public		MCD School			Public		MCD School	
Marks range	Total 80	Total 217	ECE 62	Non ECE 155	Marks range	Total 80	Total 217	ECE 62	Non ECE 155
25-31	100	100	100	100	25-31	100	100	100	100
17-24	46	92	90	92	17-24	26	55	42	60
9-16	16	65	56	63	9-16	06	25	23	24
1-8	1	23	22	22	1-8	-	07	07	07
0	-	1	-	-	0	-	01	02	01
1 1 10-12	100	100	100	100 2 1	12-14	100	100	100	100
7-9	25	66	58	69	8-11	23	56	45	60
4-6	9	36	29	39	4-7	10	34	23	38
1-3	-	09	05	11	1-3	01	09	10	09
0	-	-	-	-	0	01	02	02	03

1.2	7-8	100	100	100	100	2 2	6-7	100	100	100	100
	5-6	22	76	68	79		4-5	26	53	53	52
	3-4	4	49	42	51		2-3	01	19	16	20
	1-2	-	28	31	26		1	-	05	05	05
	0	-	14	18	12		0	-	04	05	04
1.3	7-8	100	100	100	100	2 3	3	100	100	100	100
	5-6	60	93	92	94		2	09	32	32	32
	3-4	40	85	82	87		1	04	14	11	15
	1-2	29	75	74	76		0	03	07	06	07
	0	25	49	47	50						
1 4	3	100	100	100	100	2 4	3	100	100	100	100
	2	48	86	90	84		2	59	75	74	75
	1	42	77	84	74		1	25	53	50	54
	0	36	67	76	64		0	10	32	26	34
						2 5	4	100	100	100	100
							3	47	40	36	41
							2	32	30	29	30
							1	23	18	16	18
							0	02	07	08	06

1.1 = Vocabulary, 1.2 = Visual perception, 1 3 = Auditory discrimination,

1.4 = Audio-visual association

2.1 = Prenumber concept, 2.2 = Space concept, 2.3 = Classification

2.4 = Sequential thinking, 2.5 = Part-whole relationship

Table 3.5 Mean, S.D and significance of difference on reading and numeracy readiness and their components for children of Public and MCD schools

Group	S no	Reading Readiness			S.no	Numeracy Readiness		
		Mean	S.D	t-value		Mean	S D	t-value
Public		23.78	6.24	** 10 61		26.48	4 62	** 5 35
MCD		14.36	6.97			21 51	7.78	
Public	1.1	9 11	2 19	** 4 94	2.1	12 51	2 69	** 6.09
MCD		5.70	2.18			9.58	3.98	
Public	1 2	7.25	1.21	** 9 62	2.2	6.23	1.04	** 4.49
MCD		4.34	2.61			5.17	1 83	
Public	1.3	4.64	3 12	** 8.97	2.3	2.85	0.55	** 3.58
MCD		1.66	2.29			2.46	0.91	
Public	1.4	1.73	1.41	** 6.58	2 4	2.06	0.91	** 4.41
MCD		0.76	1 11			1 41	1 18	
					2 5	2 84	1.34	1.31
						3.06	1.33	

** p <.01

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1.1 = Vocabulary, 1 2 = Visual perception, 1.3 = Auditory discrimination

1.4 = Audio-visual association

2.1 = Pre number concept 2 2 = Space concept 2 3 = Classification,

2.4 = Sequential thinking 2.5 = Part whole relationship

3.3 COMPONENTS NEEDING SPECIAL ATTENTION IN READING AND NUMERACY READINESS OF CHILDREN COMING FROM DEPRIVED BACKGROUND vis-a-vis ECE EXPERIENCE:

Public school sample was taken for present study with a specific view to gauge the level of readiness which children can achieve given the best of available facilities and environment. The results obtained in table 3.4 & 3.5 Indicate that much need to be done in this direction for children coming from deprived background on all skills under consideration.

Seventy two percent of children from MCD schools had come straight from home without any pre school education experience. However, the performance of the children coming with ECE experience (28%) was not observed to be any better (table 3 4)

Special steps need to be taken for the children from deprived background both at pre school and class I level to improve their learning skills. This can be done by providing meaningful contexts for learning at the class level and by giving children the chance to practice their skills

These context should be non threatening, interesting, action based and important (individualized) to the child

3.4 READING AND NUMERACY READINESS OF CHILDREN vis-a-vis AGE:

An attempt was made to study the reading and numeracy readiness level of pupils of different age groups Group 1 comprised of pupils up to 5 years, group II up to 5 1/2 years and group 3 had pupils above 5 1/2 years (Table 3 6)

Table 3.6 Significance of difference between pupils of different Age groups for Reading and Numeracy readiness

Age in months	Group	n	mean	Reading Readiness S D	t - values	Mean	Numeracy Readiness S D	t - values
Up to 60	1	65	14 06	6 98	I vs II 2 79**	22 02	6 88	I vs II = 1 12
61 - 66	2	117	17 40	8 12	I vs III 3.31**	22 85	7 39	I vs III = 0 56
67 and above	3	115	17 99	7 99	II vs III 0 75	23 31	7 23	II vs III = 0 46

** p > 01

Table 3.6 Indicate significant positive difference in the reading readiness of children between age groups 1 and 2 and 1 and 3. However, no such difference was observed with regard to numeracy readiness.

Overall, it can be said that average level of readiness for children up to 5 yrs was relatively lower than those of above 5 yrs for formal schooling.

3.5 Impact of social maturity Age, and Parental education on Reading and Numeracy Readiness:

The role of care giving adults and surrounding environment is crucial for child's alround development. Child's personal social, mental physical and language development is largely shaped by the quality of interaction with his/her, environment An attempt was made to gange the impact of environmental factors and age on child's readiness levels in reading and numeracy. The mothers' educational level, father's educational level and the index on social maturity (as per the rating by the teacher) were considered The data was subjected to multiple regression analysis and the results obtained are summarised in table-3.7.

Table 3.7 Variable/s contributing significantly to variance in Reading and Numeracy readiness (N= 297)

S NO.	Dimension	variables	R2	Significance level
1	Reading Readiness	Social Maturity	0 32	01
		Social maturity & Mothers' education	0.48	.01
2	Numeracy Readiness	Social Maturity	0.27	.01
		Social Maturity & Mothers' education	0 32	.01

Table 3 7 indicates that social maturity and mother's educational level contribute significantly to reading readiness. Together, they are responsible for 48% of variance in readiness scores. Social maturity alone contributes 32% of variance and thus, emerges as a stronger variable for reading readiness .

Children's age and father's education showed no significant relationship with reading readiness of entrants to class 1

The results become more pertinent in light of the fact that 47% of sample children's mothers were illiterate.

Results were more or less similar for numeracy readiness with social maturity being the stronger predictor of readiness (R2=0 27)

Data was again subjected to multiple regression taking ECE as an intervening variable. The results for the two groups of pupils with and without ECE are summarized in table 3.8

Table 3.8 Variables contributing significantly to variance in Reading and Numeracy readiness for pupils with ECE experience and without ECE experience

Group	Dimension	Variables	R2	Significance level
ECE	Reading Readiness	Mother's education	0.27	01
		Mother's education & Social maturity	0.50	01
	Numeracy Readiness	Social maturity	0 20	01
Non ECE	Reading Readiness	Social maturity	0.40	.01
	Numeracy Readiness	Social maturity	0.30	01

Results indicate that in the absence of ECE as an intervening variable social maturity alone was a significant contributor to variance in reading readiness (40%) and numeracy readiness (30%)

For pupils with ECE experience mother's education emerged as strongest (27%) and significant factor for reading readiness. It appears that educated mothers consciously expose their children to such learning experiences.

Mother's education and social maturity together were responsible for 50% of variance in reading readiness scores.

For numeracy readiness social maturity emerged as factor contributing significantly (20%) to the variance.

Overall, it can be said that social maturity and mother's education contribute to the academic readiness of pupils more than age and father's education. Social maturity in itself is outcome of various intervening and interacting variables in the child's environment and underlines the importance of a stimulating enviroment.

IMPLICATIONS

For creating an environment of active learning right from the beginning of the schooling it is essential that learning experiences of children are built upon the already acquired levels of school readiness of entrants to class I The knowledge about the average readiness levels of children in the area of reading and numeracy is therefore necessary not only for curriculum planner and textbooks writers but also for teachers, teacher educators and administrators. Implications of the study for textbook writers in particular and teachers, teacher educator and administrators in general are as follows:

1.   Vast majority of children lack adequate levels of readiness for reading and number work at the time of entry to school It is therefore essential to plan activities and materials to enhance readiness levels of children before formal learning takes place in class I.

2   In the area of reading readiness the levels acquired by children, as indicated by the results, are dismal with regards to audio-visual association, audiotory discrimination and visual perception. It would be imperative to provide to children experiences for developing required readiness skills in these areas before children actually begin reading. In order to give enriching experience to children in these skills various activities should find proper weightage in the Pre-school and class I instructional materials.

3.   With regards to vocabulary, though the achievement of children is comparatively better, but at the same time it is also true that substantial number of children have failed to respond correctly to simple sentence comprehension items and picture identification items Emphasis on promoting children's vocabulary is important in the context of reading compre- hension Activities for development of children's vocabulary should find prominant place while designing text books.

4.   In the area of numeracy readiness the results show very poor performance specially with regards to the sequential thinking, seriation, space concepts and pre-number concepts. Children lacking in these skills would need to gain experiences through suitably designed activities and materials before they take on formal arithmatic tasks.

5.   The study reveals that there are substantial number of children less than 5 years of age who are admitted in class I. Similarly there are many children who have crossed 7 years of age when admitted in class I The age range thus is from less than 5 to 7+ years. This

variation in children's age obviously makes the composition of class more hetrogenous If the situation continues to remain like this it would place heavy demand on curriculum writer to exercise flexibility in terms of contents, methods and material so that all children could assimilate curriculum contents.

6.   Pre-school expereinces have put children in advantageous position with regards to readiness levels. It is imperative to have pre-school methodology extended to class I It is also suggested that as an interim measure pre-school experiences be provided through a condensed course of school readiness programme at the beginning of the session, since it would greatly help childen.

7.   The environmental factors have shown great relevance to readiness levels of children. Mothers education has emerged as one of the most crucial factor. Preparatoin of educational plans to compensate for this disadvantageous position of children is a challenge for personnel engaged indeveloping instructional materials and planning instructional strategies.

8   There is high corelation between children's readiness levels for reading and number work and their social maturity scores based on teachers ratings. It implies that the academic readiness for reading and arithmatic is not in isolation with children's physical, psychomotor and socio-emotional state of development. It is therefore essential to pay attention to children's socio-emotional needs in order to achieve desired levels of readiness among children. The self, concept and emotional balance of children will contribute significanly towards the readiness of children for schooling.

RECOMMENDATIONS FOR FUTURE STUDIES:

1.   In order to have more realistic data to show school success of children in relation to levels of readiness at the time of school entry there is a need to conduct longitudinal studies. Children's learning achievement in Ist grade through five would have to be corelated with school readiness levels.

2.   In the context of requirement of Minimum Levels of Learning at primary level it would be highly desirable to relate the mastery of competencies at primary stage with the mastery of school readiness skills.

3   The benefits of school readiness programme of two to three months duration at the beginning of class I for those children who enter school directly form home need to be assessed in relation to their school success i.e. increase in learning achievement.

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